

**SINGLE SUPPLY: ZERO INPUT, ZERO OUTPUT**

**ZERO INPUT, ZERO OUTPUT: SINGLE SUPPLY OP-AMPS**

| MODEL<br>NUMBER | Vs<br>SPEC'd | OPEN<br>LOOP<br>GAIN | COMMON<br>MODE<br>REJECT | INITIAL<br>OFFSET<br>Eos | < INPUT BIAS CURRENTS > |            |            | <----VOLTAGE NOISE----> |              |         |              | <----CURRENT NOISE----> |        |         |        | TOTAL<br>SUPPLY<br>CURRENT<br>Iq | SLEW<br>RATE | UNITY<br>GAIN | INPUT<br>SWING | OUTPUT<br>SWING | Model Designator |        |        |        |       |
|-----------------|--------------|----------------------|--------------------------|--------------------------|-------------------------|------------|------------|-------------------------|--------------|---------|--------------|-------------------------|--------|---------|--------|----------------------------------|--------------|---------------|----------------|-----------------|------------------|--------|--------|--------|-------|
|                 |              |                      |                          |                          | vs                      | Ib<br>+25C | Ib<br>@ Ta | Ios<br>+25C             | @ .1 to 10HZ | @ 100HZ | @ 1KHZ       | @ .1>10HZ               | @ 10HZ | @ 100HZ | @ 1KHZ |                                  |              |               |                |                 | 0                | -25    | -40    | -55    | PRICE |
|                 |              |                      |                          |                          | MAX                     | MAX        | MAX        | MAX                     | 10 HZ        |         |              |                         |        |         |        |                                  |              |               |                |                 | 70               | 85     | 85     | 125    |       |
|                 |              |                      |                          |                          | CMRR                    |            |            |                         |              |         |              |                         |        |         |        |                                  |              |               |                |                 |                  |        |        |        |       |
| VOLTS           | V/uV         | dB                   | ±mV Max                  | ±uV/C                    | ± nA                    | ± nA       | ± nA       | uV PP                   | nV/u         | pA PP   | pA/SQRTHZ--> |                         |        |         |        | mA                               | V/uSEC       | MHZ           | VOLTS          | VOLTS           | mA               |        |        |        | 100's |
| <b>SINGLES</b>  |              |                      |                          |                          |                         |            |            |                         |              |         |              |                         |        |         |        |                                  |              |               |                |                 |                  |        |        |        |       |
| OP-113          | +5V          | 2                    | 90                       | 0.175                    | 4                       | 650        | 750        | 50                      | 0.3          | 9       | 4.7          |                         |        |         |        | 0.45                             | 1.75         | .6typ         | 3.5typ         | 0>4V            | 0>4V             | 30     | F      | \$1.60 |       |
| OP-113          | +5V          |                      | 93                       | 0.125                    | 3                       |            |            |                         |              |         |              |                         |        |         |        |                                  |              |               |                |                 |                  | E      | \$3.10 |        |       |
| OP-113          | ±15          | 2                    | 96                       | 0.15                     | 1.5                     | 600        | 700        | 50                      | 0.12         | 9       | 4.7          |                         |        |         |        | 0.4                              | 2            | 0.8           | 3.4            | Vss-1V          | Vss-1V           | 30     | F      | \$1.60 |       |
| OP-113          | ±15          |                      | 100                      | 0.075                    | 0.8                     |            |            |                         | 0.12         | 9       | 4.7          |                         |        |         |        |                                  |              |               |                |                 |                  | E      | \$3.10 |        |       |
| OP-183          | +5V          | 0.1                  | 70                       | 1                        | 20                      | 0.6        | 0.75       | 50                      | 2            |         | 10           |                         |        |         |        | 0.4                              | 1.5          | 5             | 5              | 0>3.5           | 0>4V             | 25     | G      | \$1.58 |       |
| OP-183          | +3V          | 0.1                  | 70                       | 1                        | 20                      | 0.6        | 0.75       | 50                      | 2            |         | 10           |                         |        |         |        | 0.4                              | 1.5          |               | 0>1.5V         | 0>2V            | 25               | G      | \$1.58 |        |       |
| OP-193          | +5V          | 0.2                  | 96                       | 0.15                     | 1.5                     | 20         | 20         | 4                       | 3            |         | 65           |                         |        |         |        | 0.05                             | 0.022        | 0.01          | 0.035          | 0>4V            | 0>4V             | +1     | F      | \$1.49 |       |
| OP-193          | +5V          | 0.2                  | 100                      | 0.075                    | 1                       | 15         | 15         | 2                       |              |         |              |                         |        |         |        |                                  |              |               | 0>4V           | 0>2V            |                  | E      | \$3.55 |        |       |
| OP-193          | +3V          | 0.1                  | 94                       | 0.15                     | 1.5                     | 20         |            | 4                       | 3            |         | 65           |                         |        |         |        | 0.05                             | 0.022        | 0.01          | 0.035          | 0>2V            | 0>3V             | +1     | F      | \$1.49 |       |
| OP-193          | +3V          | 0.1                  | 97                       | 0.075                    | 1                       | 15         |            | 2                       |              |         |              |                         |        |         |        |                                  |              |               | 0>2V           | 0>2V            |                  | E      | \$3.55 |        |       |
| OP-193          | +2V          | 0.06                 | NS                       | 0.15                     | 1.5                     | 20         |            | 4                       | 3            |         | 65           |                         |        |         |        | 0.05                             | 0.022        | 0.01          | 0.035          | 0>1V            | 0>2V             | +1     | F      | \$1.49 |       |
| OP-193          | +2V          | 0.06                 |                          | 0.075                    | 1                       | 15         |            | 2                       |              |         |              |                         |        |         |        |                                  |              |               | 0>1V           | 0>2V            |                  | F      | \$3.55 |        |       |
| <b>DUALS</b>    |              |                      |                          |                          |                         |            |            |                         |              |         |              |                         |        |         |        |                                  |              |               |                |                 |                  |        |        |        |       |
| OP-213          | +5V          | 2                    | 90                       | 0.3                      | 5                       | 650        | 750        | 50                      | 0.3          | 9       | 4.7          |                         |        |         |        | 0.45                             | 1.75         | .6typ         | 3.5typ         | 0>4V            | 0>4V             | 30     | F      | \$1.90 |       |
| OP-213          | +5V          |                      | 93                       | 0.15                     | 3                       |            |            |                         |              |         |              |                         |        |         |        |                                  |              |               |                |                 |                  | F      | \$5.40 |        |       |
| OP-213          | ±15          | 96                   |                          | 0.25                     | 2                       | 600        | 700        | 50                      | 0.12         | 9       | 4.7          |                         |        |         |        | 0.4                              | 2            | 0.8           | 3.4            | Vss-1V          | Vss-1V           |        | F      | \$1.90 |       |
| OP-213          | ±15          | 100                  |                          | 0.1                      | 1                       |            |            |                         | 0.12         | 9       | 4.7          |                         |        |         |        |                                  |              |               |                |                 |                  | F      | \$5.45 |        |       |
| SSM-2135        | +5V          | 2                    | 87                       | 2                        | NS                      | 750        | NS         | 50                      | 0.3          |         | 5.2          |                         |        |         |        | 0.5                              | 4            | 0.6           | 3.5            | 0>4             | 0>4              | 30     | F      | \$2.10 |       |
| OP-283          | +5V          | 0.1                  | 70                       | 1                        | 20                      | 0.6        | 0.75       | 50                      | 2            |         | 10           |                         |        |         |        | 0.4                              | 1.5          | 5             | 5              | 0>3.5           | 0>4V             | 25     | G      | \$2.39 |       |
| OP-283          | +3V          | 0.1                  | 70                       | 1                        | 20                      | 0.6        | 0.75       | 50                      | 2            |         | 10           |                         |        |         |        | 0.4                              | 1.5          |               | 0>1.5V         | 0>2V            | 25               | G      | \$2.39 |        |       |
| OP-292          | +5V          | 0.025                | 75                       | 0.8                      | 15                      | 700        | 2500       | 50                      | 25           |         | 15           |                         |        |         |        | 0.7                              | 2.4          | 1.5           | 4              | 0>4V            | 0>4V             | 5      |        | \$1.39 |       |
| OP-293          | +5V          | 0.2                  | 90                       | 0.25                     | 2                       | 20         | 20         | 4                       | 3            |         | 65           |                         |        |         |        | 0.05                             | 0.044        | 0.01          | 0.035          | 0>4V            | 0>4V             | +1     | F      | \$2.25 |       |
| OP-293          | +5V          | 0.2                  | 100                      | 0.1                      | 1                       | 15         | 15         | 2                       |              |         |              |                         |        |         |        |                                  |              |               |                |                 |                  | E      | \$4.95 |        |       |
| OP-293          | +3V          | 0.1                  | 94                       | 0.25                     | 2                       | 20         | 20         | 4                       | 3            |         | 65           |                         |        |         |        | 0.05                             | 0.044        | 0.01          | 0.035          | 0>2V            | 0>2V             | +1     | F      | \$2.25 |       |
| OP-293          | +3V          | 0.1                  | 97                       | 0.1                      | 1                       | 15         | 15         | 2                       |              |         |              |                         |        |         |        |                                  |              |               |                |                 | E                | \$4.95 |        |        |       |
| OP-293          | +2V          | 0.06                 | NS                       | 0.25                     | 2                       | 20         |            | 4                       | 3            |         | 65           |                         |        |         |        | 0.05                             | 0.044        | 0.01          | 0.035          | 0>1V            | 0>2V             | +1     | F      | \$2.25 |       |
| OP-293          | +2V          | 0.06                 |                          | 0.1                      | 1                       | 15         |            | 2                       |              |         |              |                         |        |         |        |                                  |              |               |                |                 |                  | E      | \$4.95 |        |       |
| <b>QUADS</b>    |              |                      |                          |                          |                         |            |            |                         |              |         |              |                         |        |         |        |                                  |              |               |                |                 |                  |        |        |        |       |
| OP-413          | +5V          | 2                    | 90                       | 0.325                    | 5                       | 650        | 750        | 50                      | 0.3          | 9       | 4.7          |                         |        |         |        | 0.45                             | 1.75         | .6typ         | 3.5typ         | 0>4V            | 0>4V             | 30     | F      | \$3.55 |       |
| OP-413          | +5V          |                      | 93                       | 0.175                    | 3                       |            |            |                         |              |         |              |                         |        |         |        |                                  |              |               |                |                 |                  | F      | \$8.10 |        |       |
| OP-413          | ±15          | 96                   |                          | 0.275                    | 2                       | 600        | 700        | 50                      | 0.12         | 9       | 4.7          |                         |        |         |        | 0.4                              | 3.4          | 0.8           | 2              | Vss-1V          | Vss-1V           |        | F      | \$3.55 |       |
| OP-413          | ±15          | 100                  |                          | 0.125                    | 1                       |            |            |                         | 0.12         | 9       | 4.7          |                         |        |         |        |                                  |              |               |                |                 |                  | F      | \$8.10 |        |       |
| OP-492          | +5V          | 0.025                | 75                       | 1                        | 25                      | 700        | 2.5        | 50                      | 25           |         | 15           |                         |        |         |        | 0.7                              | 4.8          | 1.5           | 4              | 0>4             | 0>4              | 5      |        | \$3.39 |       |
| OP493           | +5V          | 0.2                  | 90                       | 0.275                    | 5                       | 20         | 20         | 4                       | 3            |         | 65           |                         |        |         |        | 0.05                             | 0.088        | 0.01          | 0.035          | 0>4V            | 0>4V             | +1     | F      | \$3.30 |       |
| OP493           | +5V          | 0.2                  | 100                      | 0.125                    | 2                       | 15         | 15         | 2                       |              |         |              |                         |        |         |        |                                  |              |               |                |                 |                  | E      | \$6.50 |        |       |
| OP493           | +3V          | 0.1                  | 94                       | 0.275                    | 5                       | 20         | 20         | 4                       | 3            |         | 65           |                         |        |         |        | 0.05                             | 0.088        | 0.01          | 0.035          | 0>2V            | 0>2V             | +1     | F      | \$3.30 |       |
| OP493           | +3V          | 0.1                  | 97                       | 0.125                    | 2                       | 15         | 15         | 2                       |              |         |              |                         |        |         |        |                                  |              |               |                |                 |                  | F      | \$6.50 |        |       |
| OP493           | +2V          | 0.06                 | NS                       | 0.275                    | 5                       | 20         |            | 4                       | 3            |         | 65           |                         |        |         |        | 0.05                             | 0.088        | 0.01          | 0.035          | 0>1V            | 0>2V             | +1     | F      | \$3.30 |       |
| OP493           | +2V          | 0.06                 |                          | 0.125                    | 2                       | 15         |            | 2                       |              |         |              |                         |        |         |        |                                  |              |               |                |                 |                  | E      | \$6.50 |        |       |